

The Jumping Spiders of New York City (Araneae: Salticidae)

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Abstract: This paper lists 29 species of jumping spiders collected in the five boroughs (counties) of New York City giving locality, sex, date, and collector of the specimens examined. A new jumping spider, *Sitticus barnesi*, is described.

The first paper giving any indication of the Salticid population of New York City was published by Banks (1895) in a list of the spiders of Long Island. Crosby and Bishop (1928, as part of Leonard's list of the insects and spiders of New York State) include several references to Salticidae of New York City. The occurrence of several other species was mentioned by Kaston (1948) and Barnes (1958). In the present paper 29 species of Salticidae are listed and the description of a new species is included at the end of the list. Genera are listed alphabetically and species alphabetically within each genus. All known New York City records, whether previously published or not, are included.

THE SALTICIDAE OF NEW YORK CITY

- Agassa cerulea* (Walck.). Pelham Bay Pk., Bronx Co., sweeping mixed meadow, ♀, June 5, 1963, B. Cutler. Great Kills, Richmond Co., ♂, July 7, 1940, B. Malkin.
- Gertschia noxiosa* (Hentz). Jerome Pk. Reservoir, Bronx Co., ♀, June, 1959, J. Hallan. Pelham Bay Pk., Bronx Co., on ground lying stone, ♀, April 11, 1964, B. Cutler. Flushing, Queens Co., ♀, May, 1937, Crosby and Bishop.
- Habrocestum pulex* (Hentz). Extremely common in New York City on buildings and rock outcrops. Rarely found while sweeping.
- Habronattus agilis* (Banks). Jamaica Bay Wildlife Refuge, Queens Co., sweeping shore grass, ♂, May 30, 1963, T. Hlavac.
- Habronattus borealis* (Banks). Pelham Bay Pk., Bronx Co., in retreats under boulder in supralittoral zone, ♀ and immature ♂, March 23, 1963, B. Cutler.
- Habronattus coronatus* (Hentz). Bronx Botanical Gardens, Bronx Co., on rock outcrop, ♂ ♂ and ♀ ♀, August, 1961, J. Hallan.
- Habronattus viridipes* (Hentz). Jerome Pk. Reservoir, Bronx Co., on ground lying stone, ♂, June, 1959, J. Hallan. Van Cortlandt Pk., Bronx Co., on rock outcrop, ♀, April 18, 1964, B. Cutler.
- Hasarius adansonii* (Audouin). American Museum of Natural History building, New York Co., ♂ and ♀, October 15, 1938, W. J. Gertsch. Same locality, ♀, July 28, 1942, C. Breder. A tropicopolitan species occurring infrequently in the temperate parts of the United States.

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- Hentzia palmarum* (Hentz). Jamaica Bay Wildlife Refuge, Queens Co., ♂, May 23, 1964, T. Hlavac.
- Icius harti* Emerton. Bronx Co., ♂, June, 1940, S. Harriet. Fort Tryon Pk., New York Co., on stone fence, ♀, July 2, 1961, B. Cutler.
- Maevia inclemens* (Walck.). Van Cortlandt Pk., Bronx Co., on stone fence, ♀ ♀, dark and light ♂ ♂, April, 1960, J. Hallan.
- Marpissa formosa* (Banks). Great Kills, Richmond Co., ♂ and ♀, July 7, 1940, B. Malkin. Remsen Ave., Kings Co., ♂, in mailbox, May 19, 1964, D. Simon.
- Marpissa lineata* (C. L. Koch). Jerome Pk. Reservoir, Bronx Co., on ground lying stone, ♂ and ♀, June, 1959, J. Hallan. Pelham Bay Pk., Bronx Co., under stone, ♀, June 5, 1963, B. Cutler. Van Cortlandt Pk., Bronx Co., sweeping low grasses, ♀, May 29, 1964, B. Cutler.
- Marpissa pikei* (Peckham and Peckham). Richmond Co., ♂, October 17, 1911, Gronbeck.
- Metaphidippus galathea* (Walck.). Flushing, Queens Co., ♂ and ♀, May, 1937, Crosby and Bishop. Jamaica Bay Wildlife Refuge, Queens Co., ♂, May 23, 1964, T. Hlavac.
- Metaphidippus protervus* (Walck.). Extremely common in meadow situations and may be taken on the forest understory and low herbage.
- Neon nelli* Peckham. City College of New York, New York Co., under stone, ♂, April 2, 1963, B. Cutler. Pelham Bay Pk., Bronx Co., under stone, ♂ and ♀, April 27, 1963, B. Cutler.
- Paraphidippus marginatus* (Walck.). Van Cortlandt Pk., Bronx Co., under bark, ♀, March 22, 1964, B. Cutler. Wolfes Pond Pk., Richmond Co., under bark, ♂, April 25, 1964, B. Cutler.
- Phidippus audax* (Hentz). Common on stone fences and buildings. Occasionally found while sweeping mixed meadows.
- Phidippus princeps* (Peckham). Van Cortlandt Pk., Bronx Co., ♂ and ♀, September 2, 1961, J. Hallan.
- Phidippus rimator* (Walck.). Pelham Bay Pk., Bronx Co., sweeping mixed meadow, immatures, June 5, 1963, B. Cutler.
- Phidippus whitmani* Peckham. Van Cortlandt Pk., Bronx Co., immature ♀, September 23, 1961, J. Hallan.
- Salticus scenicus* (Linn.). Common on buildings and man-made stone structures.
- Sitticus barnesi*, new species. Shepard Hall, City College of New York, New York Co., on outside walls, ♂ ♂ and ♀ ♀, late April through early May, 1964, B. Cutler.
- Synemosyna lunata* (Walck.). Flushing, Queens Co., ♂ and ♀, May, 1937, Bishop and Crosby.
- Talavera minuta* (Banks). Jamaica Bay Wildlife Refuge, Queens Co., sweeping bayberry, ♂, May 30, 1963, T. Hlavac. Pelham Bay Pk., Bronx Co., mixed meadow, ♂, May 16, 1964, B. Cutler.
- Tutelina elegans* (Hentz). New York City, N. Banks. Great Kills, Richmond Co., ♂, July 6, 1940, B. Malkin.
- Zygoballus bettini* Peckham. Pelham Bay Pk., Bronx Co., ♂, April 27, 1963, B. Cutler. Van Cortlandt Pk., Bronx Co., ♀, June 24, 1963, B. Cutler.
- Zygoballus nervosus* (Peckham). Van Cortlandt Pk., Bronx Co., ♀, June 24, 1963, B. Cutler.

Kaston (1948) considered 56 species of Salticidae found in the area comprising "Massachusetts, Rhode Island, Connecticut and that portion of New York State east of the Hudson River and south of the westward prolongation of Massachusetts northern boundary." One half of these species have also been

found in the New York City area. Conspicuous by their infrequent occurrence or utter absence are the typical forest-inhabiting forms such as *Ballus youngi* Peckham, *Paraphidippus marginatus* (Walck.) and *Paraphidippus pineus* Kaston. There are small wooded tracts in Pelham Bay Park and Van Cortlandt Park, and many parts of Richmond County have second-growth trees. These areas may contain some of the forest-dwelling forms. The most interesting find was that of the following undescribed species.

Sitticus barnesi, new species

Figs. 1-3

DIAGNOSIS. *Sitticus barnesi*, new species, shares distinctive palpal features with *Sitticus finschi* (L. Koch). In both, the tibial apophysis is an elongated spur, which curves toward the bulb in *barnesi* and away from the bulb in *finschi*. The embolus of *barnesi* is nearly twice as long as that of *finschi*. *Sitticus finschi* is larger and darker than *barnesi* and occurs in more northern areas outside the presently known range of *barnesi*.

DESCRIPTION. Males 3.6 mm to 4.5 mm in total length. Average length 4.1 mm.

Carapace dark brown with band of white hairs running down middle of dorsum, widening slightly between second and third rows of eyes, again widening beyond third row. Faint bands of white hairs along sides. Clypeus yellow-brown. Sternum and labium brown. Pedipalp dark brown with white hairs bordering tarsus except at extreme distal edge. Legs yellow-brown. Patella, metatarsus, and tarsus darkened distally, tibia darkened proximally and distally. Femur brown with sparse covering of white hairs. Abdomen mottled brown above for anterior two-thirds, grading into indistinct chevrons bordered by two white spots on posterior third, sparsely covered with black and white hairs. Venter white with an indistinct brown pattern in center.

HOLOTYPE ♂. Total length, 4.20 mm, carapace, 1.90 mm long, 1.40 mm wide. Abdomen, 2.30 mm long, 1.47 mm wide. Carapace longer than wide, rather high. Clypeus narrow, equal in height to two-thirds diameter of median eyes of first row. First row recurved. Median eyes 0.35 mm in diameter, lateral eyes 0.18 mm in diameter. Second row of eyes slightly closer to third row than to first. Ocular quadrangle, 0.75 mm long, 1.20 mm wide. First tibia with three pairs of ventral spines; first metatarsus with two pairs of ventral spines. Leg formula 4312.

	I	II	III	IV
Femur	0.95 mm	0.90 mm	1.05 mm	1.40 mm
Patella	0.53	0.50	0.50	0.58
Tibia	0.65	0.58	0.60	1.00
Metatarsus	0.60	0.55	0.75	0.95
Tarsus	0.45	0.41	0.65	0.65
Total	3.18	2.94	3.55	4.58

Palpus as illustrated (fig. 1); embolus thin and extremely long for genus; tibial apophysis curving toward bulb. Abdomen suboval, pointed behind.

FEMALES 4.5 mm to 5.3 mm in total length. Average length 4.9 mm.

Coloration essentially same as in male. Tarsus and tibia of palpus with long white hairs. Tarsus clothed with black hairs. Dark areas of legs darker than in males, and femur lighter than that of male. Abdomen with more contrast between light and dark areas and more bluntly pointed than that of male.

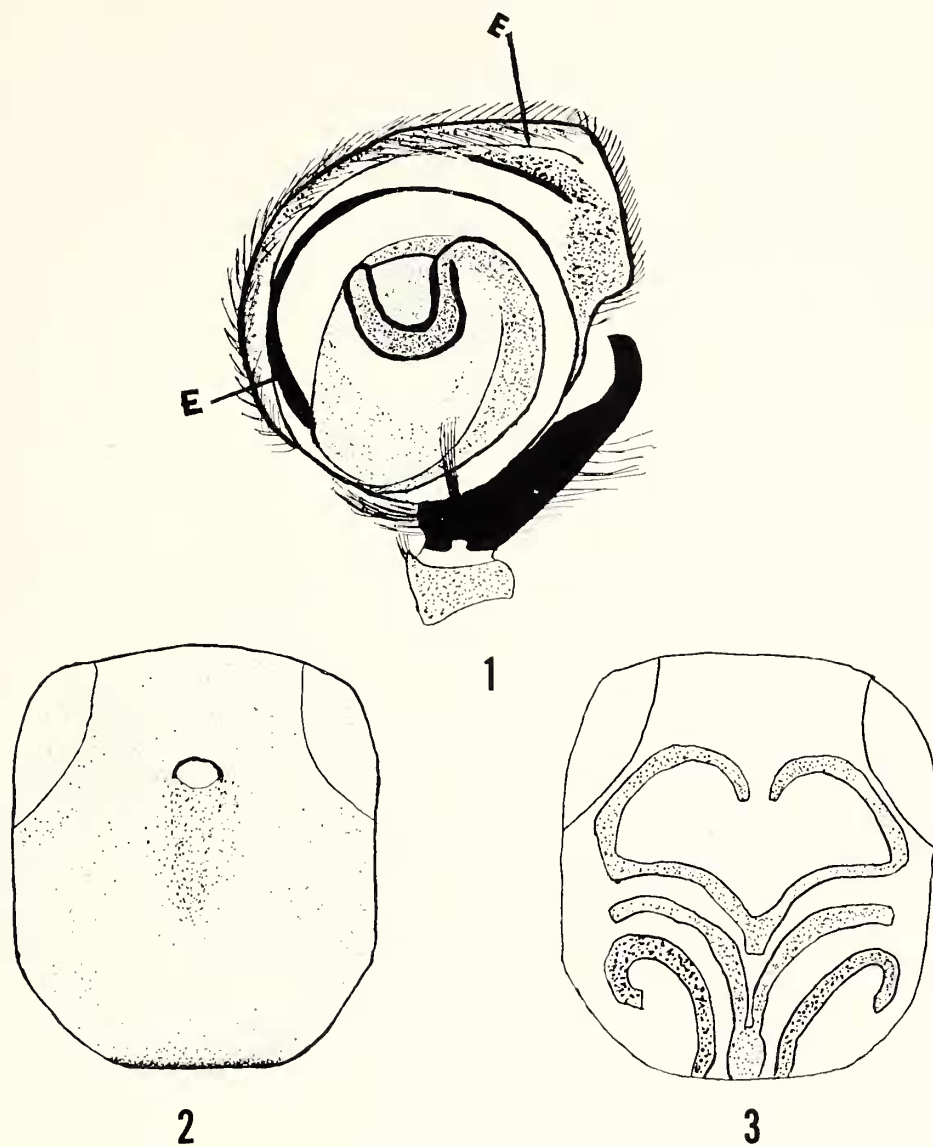


FIG. 1. Ventral view of male palpus of *Sitticus barnesi*, new species. E = embolus.
 FIG. 2. External view of epigynum of *Sitticus barnesi*, new species.
 FIG. 3. Internal view of epigynum of *Sitticus barnesi*, new species.

ALLOTYPE ♀. Total length, 5.3 mm, carapace, 2.5 mm long, 1.50 mm wide. Abdomen, 3.25 mm long, 2.05 mm wide.

Carapace longer than wide. Clypeus narrow, equal in height to one-half diameter of median eyes of first row. First row recurved. Median eyes, 0.50 mm in diameter; lateral eyes 0.25 mm in diameter. Ocular quadrangle, 1.30 mm wide, 0.95 mm long. Spination on first tibia and metatarsus as in male. Leg formula, 4321.

	I	II	III	IV
Femur	1.00 mm	1.10 mm	1.05 mm	1.75 mm
Patella	0.50	0.55	0.50	0.60
Tibia	0.70	0.65	0.95	1.50
Metatarsus	0.50	0.50	0.85	1.15
Tarsus	0.55	0.55	0.80	1.10
Total	3.25	3.35	4.15	6.10

Abdomen suboval, slightly narrower behind. Epigynum as figured, distinct from those of all other nearctic species of *Sitticus*.

TYPE LOCALITY. Male holotype, female allotype, Shepard Hall, City College of New York, New York Co., New York, April 27, 1964 (B. Cutler); male and female paratypes taken from late April to early May. The male holotype, female allotype and most of the paratypes are in the collection of the American Museum of Natural History.

Other localities: New Jersey: Somerville, Somerset County, May 17, 1964 (B. Cutler), male paratypes. Old Bridge, Middlesex County, early June, 1964 (E. Tobinick), females. New York: Greenwood Lake, Orange County, 1959 (J. Hallan), female paratypes. Pennsylvania: Gettysburg, Adams County, September 15, 1960 (R. Barnes), male and female paratypes. Minnesota: On and near campus of Agricultural Institute, University of Minnesota, Ramsey County, late June 1964, through early February 1965, males and females. Ontario: Belleville, August 10, 1964 (D. Buckle), female.

DISCUSSION OF STATUS OF *Sitticus barnesi*

The spotty distribution and special habitat of *S. barnesi* present some interesting problems. I have never found this spider in natural areas away from man-made structures. At the Somerville, New Jersey, site, *S. barnesi* was found on the outside walls of a shed in company with several specimens of *Sitticus truncorum* (Linnaeus), a common species of Europe heretofore reported only from Massachusetts. This association with an obviously introduced species may indicate that *S. barnesi* is also an introduction to our fauna from some other area. The distinct embolus is not matched by any Palearctic species. The question arises as to why early American araneologists, particularly Banks, Emerton, and the Peckhams, never noticed such a common and widespread species as *S. barnesi*. One possible answer is that *S. barnesi* is a recent introduction. The extreme, though superficial, resemblance between this species and *Habrocestum pulex* (Hentz) may have led to confusion of the two species. The first specimen of *S. barnesi* that I caught, I assumed to be *H. pulex*.

COURTSHIP AND MATING

I have observed courtship and mating of *S. barnesi* in small vials. In all instances the mating was preceded by only a slight amount of preliminary display. The male upon noticing a female would start an up and down motion with his palps. The female would only take a cursory interest in this display and then seemingly would ignore the male. He would then jump upon the dorsum of the female and maneuver himself into position across her body with his carapace overhanging the side near the junction of her carapace and abdomen, and with his palpi near the opening of the epigynum. The female would react violently at this point, often throwing the male, or carrying him around on

her back. Sometimes she would attack the male, but I never saw a fatal outcome. Copulation itself took about three to five minutes. The long embolus was often apparent as it was drawn out of the epigynal opening. The palpi were inserted alternately.

OVIPOSITION

On August 10, 1964 a gravid female was caught. She laid ten light-yellow-orange eggs in a thin, but tightly woven, cocoon on August 15. Four spiderlings hatched on September 11.

This species is named in honor of Dr. Robert D. Barnes, in recognition of his work on the subfamily Marpissinae of the Salticidae in the United States.

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